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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,260	04/04/2002	Stuart Maxwell	ATMOS.1.US	8593

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EXAMINER

CONLEY, SEAN EVERETT

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/009,260

Applicant(s)

MAXWELL ET AL.

Examiner

Sean E. Conley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 23-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/4/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/31/03, 12/10/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-22 in the reply filed on June 20, 2005 is acknowledged. Claims 23-30 are withdrawn from further consideration as being directed to a non-elected invention.

Claim Objections

2. Claims 10 and 11 are objected to because of the following informalities: Claim 10 recites the limitation "said synthetic polymer element". There is insufficient antecedent basis for this limitation in the claim. Claim 11 depends from claim 10 and is therefore also objected. The examiner believes claim 10 should depend from claim 9 and will treat claim 10 as though it depends from claim 9 in the rejection below.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5, 6, and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamaru et al. (U.S. Patent No. 5,256,377).

Regarding claim 1, Nakamaru et al. discloses a method of reducing the level of ozone in a generally enclosed environment, which comprises releasing vapor from a terpenoid or a mixture of terpenoids in the environment at a controlled rate (see figure 2; col. 3, line 60-65; col. 6, line 64 to col. 7, line 15).

Regarding claim 5, Nakamaru et al. discloses the step of releasing the terpenoid vapor by evaporation from an emission element (alcoholic gel or a water-soluble gel) (see col. 5, lines 24-30).

Regarding claim 6, Nakamaru et al. discloses that the terpenoid vapor is released by evaporation from an emission element at normal room temperature (20° C) (see examples 1-2).

Regarding claim 19, Nakamaru et al. discloses that the terpenoid has the general formula: $C_mH_{2n+14}O_p$, $m=9-15$, $n=0-4$, $p=0-2$. This formula includes several terpenes such as limonene, geraniol, and nerol (see col. 3, line 60 to col. 4, line 67).

Regarding claim 20, Nakamaru et al. discloses a method using a terpenoid that comprises linalool which is a known essential oil (see col. 4, line 52).

Regarding claims 21 and 22, Nakamaru et al. discloses the use of linalool which has a known flash point of 75°C (see col. 4, line 5; col. 5, lines 24-29).

4. Claims 1, 5, 6, and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibantai et al. (U.S. Patent No. 4,808,396).

Regarding claim 1, Shibantai et al. discloses a method of reducing the level of ozone in a generally enclosed environment, which comprises releasing vapor from a

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terpenoid or a mixture of terpenoids in the environment at a controlled rate (see col. 6, line 40 to col. 7, 46).

Regarding claim 5, Shibantai et al. discloses releasing the terpenoid vapor by evaporation from an emission element (see col. 2, lines 58-63; col. 4, lines 25-30; example 1).

Regarding claim 6, Shibantai et al. discloses that the terpenoid vapor is released from an emission element at normal room temperature (see example 1).

Regarding claim 19, Shibantai et al. discloses that the terpenoid has the general formula: $C_mH_{2n+14}O_p$, $m=9-15$, $n=0-4$, $p=0-2$. This formula includes several terpenes such as limonene, geraniol, and nerol (see col. 3, line 30 to col. 4, line 5).

Regarding claim 21, Shibantai et al. discloses a method using a terpenoid that comprises limonene or linalool (see example 1).

Regarding claims 20 and 22, Shibantai et al. discloses a method using a terpenoid that comprises linalool which is a known essential oil (see example 1) and also has a flash point of 75° C.

5. Claims 1, 5, 9-13, 16-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (U.S. Patent No. 4,735,626).

Regarding claim 1, Smith et al. discloses a method disclose a method of freshening air in a generally enclosed environment, which comprises releasing vapor from a terpenoid or a mixture of terpenoids in the environment at a controlled rate (see

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col. 3, line 55 to col. 4, line 68, particularly col. 4, lines 54-67). The method uses a lemon terpene and d-limonene in the citrus example (see col. 3, line 32).

Regarding claim 5, Smith et al. discloses a support element impregnated with a citrus fragrance that includes a terpenoid that generates a vapor since terpenoids are volatile (see col. 2, lines 55-66; col. 3, line 31-32).

Regarding claim 9, Smith et al. discloses that the support element is a porous synthetic polymer element (see col. 2, lines 3-12).

Regarding claim 10, Smith et al discloses that the synthetic polymer supports are produced by sintering or moulding a starting material comprising a synthetic thermoplastic polymer in particulate form (see col. 1, line 67 to col. 2, line 5).

Regarding claim 11, Smith et al. disclose a starting material is a high-density polyethylene (see col. 2, lines 18-20).

Regarding claim 12, Smith et al. discloses that at least 80% by weight of the particles have a particle size within the range of from 1 to 500 micron (see col. 2, lines 18-24).

Regarding claim 13, Smith et al. discloses that the emission element, before absorption of the fragrance or terpenoid, weighs 0.5 to 7 grams (see col. 2, lines 37-40).

Regarding claims 16 and 17, Smith et al. discloses that the void volume of the emission element is in the range of from 25% to 70%, more preferably between 30% and 55% of the volume of the emission element (see col. 2, lines 37-45).

Regarding claim 18, Smith et al. discloses an average pore size of the emission element is between 10 and 100 microns (see col. 2, lines 37-47).

Regarding claim 20, Smith et al. discloses the use of an essential oil with the terpenoid compound. The terpenoid compound comprises orange oil along with lemon terpenes and d-limonene (see col. 3, lines 31-35).

6. Claims 1, 5, 7, 8, 19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kodama et al. (U.S. Patent no. 4,853,735).

Regarding claim 1, Kodama et al. discloses a method of reducing the level of ozone in a generally enclosed environment, which comprises releasing vapor from a terpenoid or a mixture of terpenoids in the environment at a controlled rate (see col. 1, lines 5-10; col. 2, lines 1-16).

Regarding claim 5, Kodama et al. discloses the step of releasing the terpenoid vapor by evaporation from an emission element (mixture of terpenoid and a glycol family material) (see col. 3, lines 1-46).

Regarding claim 7, Kodama et al. discloses that the emission element is exposed to natural unforced ventilation (see col. 3, lines 15-19).

Regarding claim 8, Kodama et al. discloses the emission element is located in a container (1) configurable between an open position, in which the element is exposed to the ambient atmosphere and a closed position in which said element is generally enclosed within the housing (see figure 1; col. 3, lines 1-61).

Regarding claims 19 and 21, Kodama et al. discloses that the terpenoid has the general formula: $C_mH_{2n+14}O_p$, $m=9-15$, $n=0-4$, $p=0-2$. This formula includes several terpenes such as limonene, geraniol, and nerol (see col. 3, lines 8-10).

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Regarding claim 22, Kodama et al. discloses that the terpenoid has the general formula: $C_mH_{2n+14}O_p$, $m=9-15$, $n=0-4$, $p=0-2$ (see col. 3, lines 8-10). This formula includes the terpenoid linalool which has a known flash point of 75°C.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. as applied to claim 1.

Kodama et al. fails to specifically teach the release rate of the terpenoid vapor. However, Kodama et al. does disclose that the amount of volatilization of the ozone removing agent (mixture of terpenoid and glycol material) is controlled appropriately by designing the size and number of the holes (3) in the container (1). The amount of volatilization, i.e., amount of supply per unit time, of terpenoid into the surrounding atmosphere should be appropriately determined in consideration of various factors, such as the amount of ozone generated. The amount of supply per unit time of terpenoid vapor is a result effective variable that determines whether or not the ozone is decomposed. Therefore, it would have been obvious to use a release rate claimed by the applicant since it has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

8. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. as applied to claim 13 above, and further in view of Shibantai et al. (U.S. Patent No. 4,808,396).

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Smith et al. fails to teach the step of adding about 15 grams of terpenoid liquid to the emission element. However, Smith et al. discloses an emission element containing 1 to 2 grams of a terpenoid composition (see examples).

Shibanai et al. disclose the use of 40 grams of limonene in the ozone decomposing agent (see example 1). Shibanai et al. further teaches that the concentration of the terpenoid in the ozone decomposing agent is adjusted depending upon where and for what purpose it is used. When it is used, for instance, in an electrophotographic copying machine in which ozone is formed with a low concentration, the concentration of the terpenoid should be low, while when it is used, for instance, for treatment and purification of water, the concentration of the terpenoid has to be high (see col. 5, lines 29-37).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Smith et al. and include about 15 grams of terpenoid liquid in the emission element in order to decompose higher concentrations of ozone as taught by Shibanai et al.

Furthermore, the concentration of the terpenoid is a result effective variable and it has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. Patent No. 5,567,416 to Sato et al. discloses the use of a slow-volatilizing terpenoid composition for decomposing ozone.
- U.S. Patent No. 5,423,902 to Strutz et al. discloses a filter material impregnated with a terpenoid for removing ozone from gases.
- EP 0529937 A to Green et al. discloses a reservoir containing terpenes for reacting with ozone.
- JP 04338212 A to Watabe discloses a container holding a composition for decomposing ozone.
- JP 60197222 A to Takano et al. disclose an ozone decomposing agent that comprises terpenoids.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 5, 2005

SEC

A.E.C.

John Kim
JOHN KIM
SUPERVISORY PATENT EXAMINER